

Sub B

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7) claims

1. A process for producing polymeric constituents, including the steps of:

5 (a) preparing a polymeric substrate which has depressions on at least one surface,

(b) applying a polymeric covering to a surface present on the substrate and having depressions,

10 (c) heating the substrate with the covering present thereupon to a temperature which is at least as high as the glass transition temperature of the substrate or/and of the covering, and

15 (d) cooling.

2. The process as claimed in claim 1, wherein the polymeric substrate and the polymeric covering are selected from the group consisting of acrylic polymers, polycarbonates, polystyrenes, and also copolymers and mixtures of these.

25 3. The process as claimed in claim 2, wherein the polymeric substrate and the polymeric covering are selected from the group consisting of acrylic polymers, in particular of polymethyl methacrylate polymers, or of polymeric carbonates.

30 4. The process as claimed in any of claims 1 to 3, wherein the substrate has depressions with a width or/and depth within the range from 10 nm to 2 mm.

35 5. The process as claimed in claim 4, wherein the substrate has depressions with a width or/and depth within the range from 100 nm to 1 mm.

6. The process as claimed in claim 5,
wherein
the substrate has depressions with a width or/and
5 depth within the range from 1 μm to 500 μm .

7. The process as claimed in any of the preceding
claims,
wherein
10 substrate and covering are selected from among
polymeric materials of the same type.

8. The process as claimed in any of the preceding
claims,
15 wherein
at least the covering is selected from among
optically transparent materials.

9. The process as claimed in any of the preceding
20 claims,
wherein
the polymeric covering and the substrate are
combined by pressure.

25 10. The process as claimed in claim 9,
wherein
the pressure applied is within the range from 1 to
1000 kg/cm².

30 11. The process as claimed in any of the preceding
claims,
wherein
the duration of heating is within the range from
0.5 to 3 h.

35 12. The process as claimed in any of the preceding
claims,
wherein

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the heating temperature is not more than 5°C above the glass transition temperature.

13. The process as claimed in any of the preceding
5 claims,

wherein

the substrate and the covering present thereupon are held within the region of the heating temperature for a period of at least 15 min.

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14. The process as claimed in claim 13,
wherein

the substrate and the covering present thereupon are held within the region of the heating 15 temperature for a period of at least 30 min.

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15. The process as claimed in claim 13 or 14,
wherein

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the holding temperature is within $\pm 3^\circ\text{C}$ of the heating temperature.

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16. The process as claimed in any of the preceding claims,
wherein

the duration of the cooling is at least 1 h.

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17. The process as claimed in claims 16,
wherein

the duration of the cooling is at least 2 h.

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18. The process as claimed in any of claims 1 to 15,
wherein

the duration of the cooling is up to 30 sec.

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19. A polymeric constituent with hollow structures present therein, obtainable by a process as claimed in any of claims 1 to 18.

20. A polymeric component as claimed in claim 19,

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wherein

the hollow structures comprise closed channels with a width or/and depth of from 10 nm to 10 mm.

5 21. A polymeric component as claimed in claim 19 or 20,

wherein

the interior of the component is free from adhesives.

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22. The use of polymeric components as claimed in any of claims 19 to 21 in detection procedures, in particular in optical or/and electrical detection procedures.

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